followed by successful engraftment. Grade 2 nausea and grade 1 emesis were seen briefly on day 2 of TMI. Skin erythema, oral mucositis, esophagitis, and enteritis were not observed. **Conclusions:** This report demonstrates the feasibility to selectively deliver myeloablative doses of radiation to bone and marrow using Tomotherapy. Organ doses were substantially lower than those associated with standard TBI and predict for the potential to significantly reduce associated toxicities, allowing for dose escalation. Ongoing trials will define the maximum TMI/TMLI doses achievable and define the potential advantages and limitations of this new approach for patients undergoing HSCT (Table1).

Median Organ Doses (Gy) for TMI 12 and 20 Gy vs Standard TBI 12 Gy in a 20 Year Old Patient with AML

Organ	TMI 12 Gy	TMI 20 Gy	Standard TBI 12 Gy
Lungs	**4.3**	**6.8**	**8.8**
Esophagus	**3.9**	**5.6**	**12.4**
Liver	**6.0**	**8.7**	**12.3**
Kidneys	**5.6**	**8.7**	**12.2**
Bowel	**3.5**	**5.0**	**12.3**
Bladder	**7.0**	**7.4**	**12.4**
Eyes	**6.6**	**7.0**	**11.3**
Parotids	**3.9**	**4.8**	**11.8**
Oral cavity	**2.2**	**3.0**	**11.8**
Stomach	**3.1**	**5.0**	**12.2**
Ovaries	**4.3**	**6.0**	**12.3**
Breasts	**6.9**	**8.7**	**11.5**
Heart	**6.2**	**6.4**	**12.1**
Thyroid	**3.7**	**4.9**	**12.1**
Brain	**4.0**	**7.9**	**12.0**
Lens	**1.5**	**1.9**	**11.3**

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ABSOLUTE NUMBER OF TRANSPLANTED CD34$^+$ CELLS EXPRESSING C-MPL (CD110) CORRELATES WITH SPEED OF PLATELET ENGRAFTMENT FOLLOWING AUTOLOGOUS STEM CELL TRANSPLANTATION

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Recovery of neutrophil numbers after peripheral blood stem cell transplantation (PBSCT) is closely associated with graft CD34$^+$ cell dose. Predicting the speed of platelet recovery is more difficult but would be of value given that a significant minority of patients experience delayed platelet recovery and bleeding complications after transplantation. In this study we retrospectively analysed the graft composition of 29 patients who underwent autologous transplantation, using blood stem cells mobilized with cyclophoshamide and G-CSF, to assess the utility of c-mpl expression on CD34$^+$ cells as a predictor of platelet engraftment (ie, time to platelet count greater than 20×10^9/L for 3 consecutive days without the need for platelet transfusion). Absolute CD34$^+$ cells and CD34 subsets expressing c-mpl were enumerated using a published single platform viable CD34 flow cytometry assay (BMT, 2005). Of the 29 patients 7 required at least 21 days for platelet engraftment. These patients received a median graft dose of 5.7×10^4 CD34$^+$CD110$^+$ cells/kg compared with a median dose of 13.4×10^4 cells/kg received by patients who experienced platelet engraftment within 21 days of transplant ($P = .013$). In contrast, there was no difference in the number of CD34$^+$ cells/kg infused (4.0 v 4.9×10^6/kg for $>$ or $<$ 21 days for platelet engraftment respectively, $P = .23$). There was a poor correlation between the absolute number of CD34$^+$ cells and the number of CD34$^+$CD110$^+$ cells in the graft ($r^2 = 0.48$). Similarly there was no correlation between the percentage of CD34$^+$ cells expressing c-mpl and the speed of platelet engraftment (8.1 v 5.8%) for $>$ or $<$ 21 days for platelet engraftment respectively, $P = .39$). Patients with $>$21 days for platelet engraftment received platelet transfusions more often than those with $<$21 days for platelet engraftment (median 9 v 2 transfusions, $P < .001$). The absolute number of CD34$^+$/CD110$^+$ cells/kg infused at time of transplantation appears to be an important factor identifying patients at risk of delayed ($>$21 days) platelet engraftment. Those with $<6 \times 10^4$CD34$^+$/CD110$^+$cells/kg are at particularly high risk of delayed platelet engraftment requiring multiple transfusion after transplantation.

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AMD3100 + G-CSF IMPROVES HEMATOPOIETIC PROGENITOR CELL (HPC) COLLECTION IN PATIENTS WITH HODGKIN'S DISEASE (HD)

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For patients undergoing autologous stem cell transplantation, the number of CD34+ cells infused is a reliable predictor of neutrophil and platelet engraftment, with doses $\geq 5 \times 10^6$ CD34+ cells/kg associated with faster count recovery. However, among the 98 patients with HD who have undergone G-CSF-alone mobilization at our institution in the past 5 years, 22% did not achieve a minimum HPC collection of 2×10^6 CD34+ cells/kg in $\leq$5 apheresis procedures, and only 15% achieved a collection $\geq 5 \times 10^6$ CD34+ cells/kg. AMD3100 mobilizes HPCs by reversibly inhibiting the interaction of CXCR4 and SDF-1α. It has been shown to improve HPC mobilization in patients with multiple myeloma and non-Hodgkin's lymphoma. Here we present results for the first ten HD patients treated with a mobilization regimen of AMD3100 + G-CSF. Ten patients with relapsed (8) or refractory (2) HD were mobilized with G-CSF (10 ug/kg/day) + AMD3100 (240 ug/kg/day) beginning on day 4. Apheresis was performed 11 hours after each AMD3100 dose. The first dose of AMD3100 produced a median (range) 3.0 (1.9–5.1)-fold increase in the number of circulating CD34+ cells. Six patients achieved a collection of $\geq 5 \times 10^6$ CD34+ cells/kg, and all patients collected $>2 \times 10^6$ CD34+ cells/kg (range, 3.6–9.4). The median (range) number of apheresis procedures performed per patient was 2 (1–4). No grade II-IV adverse events were ascribed to AMD3100. All patients have been transplanted with G-CSF + AMD3100 mobilized cells. They have had prompt and stable engraftment, with median neutrophil recovery at day +9 (9–11) and median platelet recovery at day +16 (12–23). We conclude that AMD3100 + G-CSF is a well-tolerated and effective mobilization regimen in patients with HD. All patients (100%, 95% CI 69%–100%) mobilized with AMD3100 + G-CSF achieved the minimum collection of 2×10^6 CD34+ cells/kg, and a significantly higher proportion of patients (60%, 95% CI 26%–88%) achieved the goal collection of $\geq 5 \times 10^6$ CD34+ cells/kg than did the historical controls (15%). Importantly, the median collection in the first two days of pheresis was 5.4×10^6 CD34+ cells/kg, which is significantly better than historical controls, who collected a median 3.0×10^6 CD34+ cells/kg in the first two days of pheresis ($P = .014$). Our results demonstrate that the mobilization regimen of AMD3100 + G-CSF can improve the number of HPCs collected and decrease the number of days of pheresis in HD patients.

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HEMATOPOIETIC AC133+ STEM CELL THERAPY FOR PATIENTS WITH SEVERE PERIPHERAL VASCULAR DISEASE

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Hematopoietic stem cells, especially more primitive endothelial cell precursors, AC133+ cells, may contribute to neo-angiogenesis. Here we report short-term outcomes of the first 5 patients who underwent autologous selected AC133+ stem cell percutaneous transplant for their medically refractory and not-amenable to surgical reconstruction lower extremity (LE) peripheral vascular disease (PVD). Patients were 3 females and 2 males; median age was 59 (range 26–84) years old. Peripheral blood AC133+ cells were mobilized with G-CSF 10 mcg/kg/day for 4 days. Median apheresis number of was 1 (range 1 to 2). AC133+ cells were enriched using CliniMACS device, Miltenyi Biotec, Inc. Total number of